SNF Stabilization and Disposition (RL-0012)

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K West Debris Removal

Mobile Solidification System for the Sludge Treatment Project

Overview

This section addresses work in Project Baseline Summaries (PBS) RL-0012, *Spent Nuclear Fuel (SNF) Stabilization and Disposition.*

NOTE: Unless otherwise noted, all information contained herein is as of the end of February 2007.

Notable Accomplishments

SNF Stabilization and Disposition (PBS RL-0012)

- **K East Containerization:**
  - Completed Final Pass vacuuming of 1,545 cubicles in the center and east bays
  - Identified and implemented alternate sludge container option (North Loadout Pit [NLOP])
  - Completed 90 percent development of demonstration of Qualified Process for debris handling
  - Resolved disposition path for sand filter sand (T Plant treatment)
  - Approved grout testing contract and began preparations to perform testing

- **K West Retrieval:**
  - Vacuumed 3,191 of 8,271 (38.6 percent) cubicles
  - Completed installation of four two-ton and four one-ton hoists for debris removal
  - Loaded 3,600 pounds of debris into IP-2
  - Suspended remaining racks in center bay and staged for removal

- **Hose-in-Hose (HIH) Transfer:**
  - Developed and implemented recovery plan
  - Changed booster stations 1 and 3 lineup to backup pumps
  - Performed internal inspection of P-302
  - Installed dual strainer assembly between P-113 and P-112
  - Modified dilution control for P-113 suction pressure signal input; installed vibration monitoring on booster station pumps
  - Revised pump operating parameters to resolve P-331 vibration
  - Completed transfer of Tank 102 as of March 8, 2007; started transfer of Tank 101

- **Sludge Treatment Project (STP):**
  - Retrieval and Transfer Systems
    - Completed FH review of 100 percent design package and submitted comments to British Nuclear Group America (BNGA) for disposition
  - Corrosion System
    - Accepted 100 percent Design package
    - Initiated 100 percent Design gap and hazards analysis
    - Received proposals from potential fabricators
  - Assay System
    - Received proposals from potential fabricators
  - Mobile Solidification System (MOSS)
    - Fabrication 87 percent complete
  - Drum Handling Systems
    - Held Shield Window and Drum Handling Systems fabrication kickoff meetings
  - Drum Load-out Station
    - Initiated detailed design

Notable Accomplishments, continued

- **Sludge Treatment Project (continued)**
  - Control Systems
    - Safety Class Control System Programmable Logic Controller (PLC) programming – 0 percent complete
    - General Service Control System PLC programming – 27 percent complete
    - Hardwired Safety Class Control System design – 50 percent complete
  - Equipment Installation Packages Design
    - 21 percent complete
  - Performance Incentive Facility Modification Packages (FMPs)
    - Completed field work on 3 FMPs
      - HNF-FMP-06-30718, “Bay 2 Fire Protection”
      - HNF-FMP-06-29992, “Bay 2 Crane Controls”
      - HNF-FMP-06-31796, “CVDF Fire Protection System”
    - Field work ongoing on one FMP
      - FMP-06-29993, “Remove Bay 2 Conduit”
    - Overall field work is 20 percent complete
  - Nuclear Safety
    - Received initial RL comments on Volume 2, Revision 0 of Preliminary Design Safety Analysis (PDSA)
  - HIH Lessons Learned
    - Completed HIH Lessons Learned recommendation to perform Functional Integration Review of Contractor Stabilization and Packaging System (CSAPS) and Retrieval and Transfer (R&T) Systems 100 percent Design
    - Continued temporary assignment of STP staff to support HIH recovery actions and to identify HIH Lessons Learned that may be applicable to STP

Issues

SNF Stabilization and Disposition (PBS RL-0012)

- **Completion of K East final pass and post transfer vacuuming is trending behind schedule due to slower than planned progress around installed equipment and poor visibility. Small debris is causing frequent hose clogs requiring change out of the hoses.**
  Actions in Progress:
  - Determine cause of degraded visibility
  - Development of a recovery plan to increase the vacuuming system operating time
  - Complete additional needed debris removal in the West bay
  - Continue to monitor re-deposition of sludge, no issues to date
  - Maintaining spare pumps and hose inventory to facilitate quick recovery from debris plugging or pump failure
  - Conduct two system operations when viable

Issues, continued

- **HIH transfers resumed on February 19, 2007, vibration was noted in pump P-331 on February 20, 2007, and a leak on pump P-112 was identified on February 28, 2007. The vibration was remedied by tightening the bracing internal to the booster station; pump P-112 was replaced. Continued working items identified in the recovery plan:**
  Actions Completed
  - o System modifications including installation of duplex strainer, additional dilution water at tank outlet, vibration monitoring equipment, modified operating procedures (suction pressure trips), pump seal pressure recharge system. Recovery team established to provide 24/7 coverage that will ensure implementation of recovery plan.
  - o Obtaining all necessary technical resources to diagnose system performance problems and generate repair actions.

  Actions in Progress:
  - o Contingency planning including pump replacement with modified impeller design; retrieval of sludge via alternative methods.
  - o Revised working schedule to incorporate transfer duration and coordinate with K East and K West activities to maintain progress to milestones.
  - o Replenishing spares inventory to facilitate continued quick repair cycle.

- **Revisions to the K East, K West, and HIH activities in response to emerging risks/mitigation actions will increase the utilization of Project Management Reserve (PMR) and project funds.** (Specific discussion of Sludge Treatment risks/cost increases included in later section of brief.)
  Actions in Progress:
  - o Have identified sources of additional funds and or scope adjustments that provide sufficient margin to repair and recover HIH system. Includes the tracking of deferrals and carryover liability.
  - o Close coordination with KBC functional leads in order to identify all personnel and material expenditures.
  - o Continuous discussion with RL regarding scope deferrals or additional funds (several direct discussions/meetings). Received RL letter February 27, 2007, providing guidance/updated forecast.
  - o Continuous discussion with RL regarding scope deferrals or additional funds (several direct discussions/meetings).

Sludge Treatment:

- **Impact of decision to hold new procurements and Cold Vacuum Drying Facility (CVDF) construction starts until successful RL CD-3, "Readiness to Start Construction" review**
  Actions in Progress:
  - o Reach agreement on requirements and schedule for successful Critical Decision (CD)-3 review
  - o Fluor Corporate review of HIH and STP
  - o Development of detailed scope and planning of required design, testing, safety, and baseline update deliverables required for CD-3 review

- **Impact of risk mitigation changes (use of Design Basis Analysis [DBA] for safety basis, reduction in T Plant FY2007 support for readiness to receive drums, final Remote Handled Transuranic Waste Authorized Methods for Payload Control (RH-TRAMPAC), delayed in approval of Volume 2, Revision 0 of STP PDSA, December 2006 construction halt, etc.)**
  Actions in Progress:
  - o Impacts will be incorporated in baseline update required for CD-3 review

- **Potential impacts from ten open issues identified during Corrosion System 100 percent design hazards analysis**
  Actions in Progress:
  - o Issues under evaluation

FY 2007 Funds vs. Spend Forecast ($M)

	Projected FY 2007 Funding	FY 2007 Fiscal Year Spend Forecast	Variance
RL-0012 SNF Stabilization & Disposition	$ 134.0	$ 123.4	$ 10.6

FY 2007 Schedule/Cost Performance ($M)

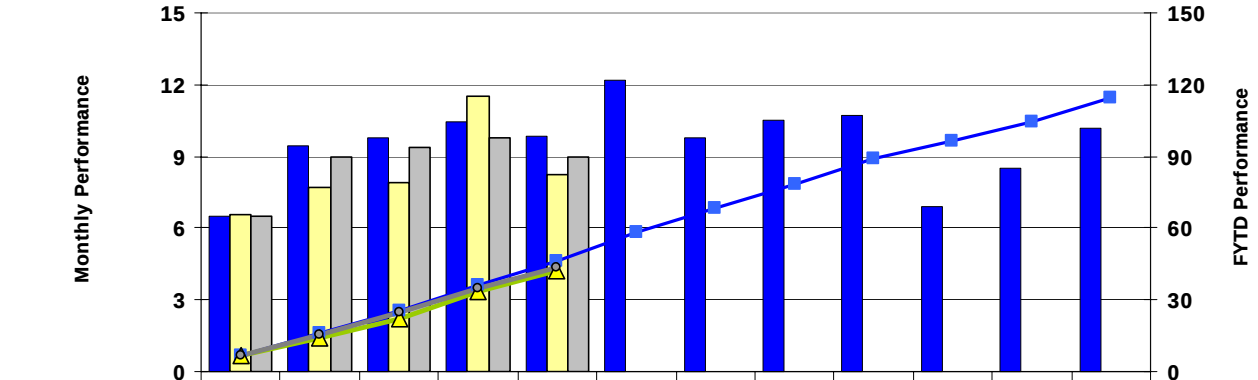
		Budgeted Cost of Work Scheduled	Budgeted Cost of Work Performed	Actual Cost of Work Performed	Schedule Variance $	Schedule Variance %	Cost Variance $	Cost Variance %	Budget At Completion
RL-0012	SNF Stabilization & Disposition	$46.0	$41.9	$43.6	-$4.2	-9.1%	-$1.7	-4.1%	$114.8

Numbers are rounded to the nearest $0.1M and include the closure services allocation.

- **Schedule Performance (-$4.2M/-9.1%):** Delays occurred in the following activities: Sludge Treatment design review, procurement and construction activities due to impact of CD-3 design requirements, K West sludge containerization due to late start and completion of FY2006 carryover work scope (start-up). The behind schedule position was partially offset by completing FY2006 carryover work in FY2007 (K East containerization and HIH).

- **Cost Performance (-$1.7M/-4.1%):** The unfavorable CV is primarily due to overruns in HIH operations and resultant recovery plan; and STP BNGA design and engineering due to DBA impact and implementation of CD-3 requirements. The overrun is partially offset by efficiencies obtained in K East carryover work scope, K West Floor and Pit Sludge Retrieval (FPSR) vacuuming, Legacy Fuel Operations and D&D activities.

Performance Analysis
FYTD and Monthly ($M)



	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07
Monthly BCWS	6.5	9.5	9.8	10.4	9.8	12.2	9.8	10.5	10.7	6.9	8.5	10.2
Monthly BCWP	6.6	7.7	7.9	11.5	8.2							
Monthly ACWP	6.5	9.0	9.4	9.8	9.0							
FYTD BCWS	6.5	16.0	25.7	36.2	46.0	58.2	68.0	78.5	89.2	96.1	104.6	114.8
FYTD BCWP	6.6	14.3	22.1	33.6	41.9							
FYTD ACWP	6.5	15.5	24.8	34.6	43.6							

Milestone Achievement

Number	Milestone Title	Type (TPA / PI / DNFSB)	Due Date *	Actual Date	Forecast Date	Status / Comments
M-034-33B (S10-05-018)	Complete K East Sludge Containerization	TPA	03/01/05	10/20/06		Complete
DNFSB 119E (S10-05-014)	Complete K East Bulk Sludge Consolidation	DNFSB	10/31/06	10/20/06		Complete 11 days ahead of milestone
M-034-34 (S10-05-010)	Complete Removal of K East Sludge	TPA	05/31/07		06/06/07	Behind schedule; recovery plan in place/progress
DNFSB 120E (S10-05-015)	Complete K East Basin Containerized Sludge Removal	DNFSB	05/31/07		05/23/07	On Schedule
DNFSB 122E	K East Final Pass Sludge Removed	DNFSB	05/31/07		06/06/07	Behind schedule; recovery plan in place/progress
M-034-35a (S10-05-011)	Containerize K West Bulk Sludge	TPA	07/31/07		06/26/07	Ahead of Schedule
DNFSB 119W (S10-05-016)	Complete K West Bulk Sludge Containerization	DNFSB	07/31/07		06/26/07	Ahead of Schedule
M-034-35b (S10-05-011)	Complete K West Final Pass	TPA	01/31/08		01/31/08	On Schedule

* DNFSB dates reflect Implementation Plan update, TPA dates reflect change package M-34-05-04, forecast dates are current working level schedules.